

IMAGING ANALYSIS OF LDEF CRATERS: F. Radicati di Brozolo, D.W. Harris, J.A. Chakel, R.H. Fleming, C. Evans & Associates, 301 Chesapeake Dr., Redwood City, CA 94063; T.E. Bunch, NASA Ames Res. Ctr., Moffett Field, CA 94034.

We have analyzed two small craters in Al from LDEF experiment tray A11E00F (#74, 119 μm and #31, 158 μm diameter), using Auger electron spectroscopy (AES), time-of-flight secondary ion mass spectroscopy (TOF-SIMS), low voltage scanning electron microscopy (LVSEM) and SEM EDS. High resolution images and sensitive elemental and molecular analysis have been obtained with this combined approach.

Both craters exhibit residues on the bottom (Figure 1) indicating that impact craters on LDEF may be another source of information on extraterrestrial particles. The impactor for the two craters was C-rich, as elemental maps show C distributed near the bottom and around the raised rim. SEM EDS also reveals the presence of Si, Mg, S, Ca, Fe and Ni suggesting a chondritic composition for the impactor. TOF-SIMS images indicate the presence of numerous surface contaminants, including organics, Ag and I (Figure 2). A small spot containing locally elevated levels of Cl was observed on the walls of crater #31 (Figure 3).

